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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/598,082

11/27/2006

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EXAMINER

FOGARTY, CAITLIN ANNE

ART UNIT

PAPER NUMBER

1793

NOTIFICATION DATE

DELIVERY MODE

07/08/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com  
pto@gbpatent.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/598,082	<b>Applicant(s)</b> OSAWA ET AL.	
	<b>Examiner</b> CAITLIN FOGARTY	<b>Art Unit</b> 1793	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 April 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Status of Claims***

1. Claims 1 – 20 are pending where claim 1 has been amended.

### ***Status of Previous Rejections***

2. The 35 U.S.C. 102(b) rejection of claim 1 as being anticipated by JP 2001-226722 has been withdrawn in view of the amended claims filed April 23, 2010.

The 35 U.S.C. 103(a) rejection of claims 2 – 8 and 16 – 20 as being unpatentable over JP 2001-226722 has been maintained.

### ***Priority***

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 9 – 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 9 – 15 recite that the magnesium starting material is Mg. However, amended claim 1 recites that the magnesium starting material may comprise *elemental* Mg. Therefore, in order to be consistent with independent claim 1 and to avoid a broader claim language in the dependent claims, claims 9 – 15 should be amended to recite that the magnesium starting material is "elemental Mg."

***Claim Rejections - 35 USC § 103***

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 1 – 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2001-226722 from the IDS (hereinafter JP '722).

JP '722 is applied to claims 1 – 20 as set forth in the January 15, 2010 Office action. Claim 1 has been amended.

With respect to amended instant claim 1, [0016], [0019], and [0027]-[0030] of JP '722 disclose a method of producing a Mg-REM-Ni based hydrogen-absorbing alloy. The first step of the method is melting a rare earth element starting material having a low evaporation pressure (such as La, Ce, Pr, Nd, and Y) and a nickel starting material in a melting furnace to obtain a melt of REM-Ni alloy. The second step of the method is to add a magnesium starting material to the melt of REM-Ni alloy to obtain a melt of Mg-REM-Ni alloy. Finally, the third step of the method is to cool and solidify the melt of Mg-REM-Ni alloy at a given cooling rate. Although JP '722 does not specifically teach that during the second step the pressure inside the melting furnace is kept at a given level to obtain a melt of Mg-REM-Ni alloy it would be an inherent feature of the method of JP '722 since the furnace is maintained in a vacuum state and the elements are maintained in the melted state. In regards to the magnesium starting material, [0006] and [0007] of JP '722 discloses that it is known in the art to use elemental Mg metal as the magnesium starting material. However, JP '722 teaches that it is not preferable to add Mg metal directly to an elevated temperature molten metal because a large amount of

Art Unit: 1793

Mg will evaporate. Therefore, it would have been obvious to one of ordinary skill in the art to use the known magnesium starting material of Mg in the method of JP '722 with the expectation of a large amount of Mg evaporation. See MPEP 2123 II.

***Response to Arguments***

8. Applicant's arguments filed April 23, 2010 have been fully considered but they are not persuasive.

*Arguments are summarized as follows:*

- a. JP '722 does not disclose a second step of adding magnesium starting material comprising Mg or Mg<sub>2</sub>Ni to the melt of REM-Ni alloy and keeping a pressure inside the melting furnace at a given level to obtain a melt of Mg-REM-Ni alloy.
- b. The present invention discloses the method of obtaining the desired compound alloy of high precision by melting Mg have high vapor pressure and a metal having a higher melting point than Mg. In contrast, JP '722 includes the premise that the corresponding alloy, REM-Mg alloy, already exists and does not provide disclosure how to obtain this alloy.
- c. JP '722 teaches that it is not preferable to add Mg metal directly to an elevated temperature molten metal because a large amount of Mg will evaporate. The disclosure of JP '722 teaches away from Applicants' claimed method and, in fact, specifically discloses problems with adding Mg metal directly to an elevated temperature molten metal and provides its method for avoiding adding a rare earth-magnesium system hardener to a nickel molten metal or a rare earth-nickel

Art Unit: 1793

series molten metal. Thus, JP '722 teaches away from Applicants' claimed subject matter, and one having ordinary skill in the art would not have arrived at Applicants' claimed subject matter.

d. Applicants submit that JP '722 does not describe the pressure inside the furnace at the time of melting, but describes in examples that the melting is carried out under a pressure of 0.1 MPa (750 torr). The features of Applicants' claims relating to pressure and temperature are not taught or suggested by JP '722.

*Examiner's responses are as follows:*

a. The Examiner addressed amended instant claim 1 in the above rejection.

b. The instant claims do not recite the limitation of obtaining the desired compound alloy of high precision by melting Mg which has high vapor pressure and a metal having a higher melting point than Mg and therefore JP '722 is not required to teach this limitation.

c. JP '722 teaches a method that it believes improves upon the known method of using elemental Mg or Mg<sub>2</sub>Ni as a magnesium starting material. However, JP '722 teaches that it is known in the art to use elemental Mg or Mg<sub>2</sub>Ni as a magnesium starting material. JP '722 does not teach away from using either of these as a magnesium starting material, but rather teaches that it is not preferable to use elemental Mg or Mg<sub>2</sub>Ni because a large amount of Mg will evaporate. Therefore, the Examiner takes the position that it would have been obvious to one of ordinary skill in the art to use the known magnesium

Art Unit: 1793

starting material of elemental Mg or  $Mg_2Ni$  in the method of JP '722 with the expectation of a large amount of Mg evaporation. Applicant has not demonstrated that the instant invention would produce unexpected results from what is already known in the art which is a large amount of Mg evaporation when either elemental Mg or  $Mg_2Ni$  is used as a magnesium starting material. Thus, in the absence of evidence to the contrary, the Examiner maintains the above rejections.

d. In regards to the pressure of the furnace of JP '722, the Examiner set forth her position above. JP '722 does not specifically teach that the pressure inside the melting furnace after the addition of the magnesium starting material is kept at a pressure of 350-500 Torr. However, [0027]-[0033] of JP '722 teach that the furnace is maintained in a vacuum state. Then, argon gas is introduced into the furnace in order to control evaporation of Mg. JP '722 teaches that an argon pressure of 0.1 MPa (750 Torr) is preferred. However, the pressure inside the melting furnace after the addition of the magnesium starting material is a result effective variable in terms of controlling the evaporation of Mg. Therefore, it would have been obvious to one of ordinary skill in the art to optimize the pressure inside the melting furnace after the addition of the magnesium starting material through routine experimentation in order to control the evaporation of Mg to a desired level. See MPEP 2144.05 II B. Furthermore, Fig. 1 of the instant specification does not clearly show that a molten bath temperature not less than 1500°C cannot prevent transpiration of Mg. Fig. 1 only displays the relationship

Art Unit: 1793

between pressure inside the furnace and temperature of the melt. Therefore, Applicant has not demonstrated the criticality of the pressure inside the melting furnace.

***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CAITLIN FOGARTY whose telephone number is (571)270-3589. The examiner can normally be reached on Monday - Friday 8:00 AM - 5:30 PM EST.



Art Unit: 1793

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ Roy King/  
Supervisory Patent Examiner, Art  
Unit 1793

CF